# *Project Baseline Summary Report*

Data Source: **EM CDB** Report Number: **GEN-01b**

Operations/Field Office: **Idaho** Print Date: **3/10/2000**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory** HQ ID: **0193**

Project **ID-HLW-101 / High-Level Waste Pretreatment**

## General Project Information

### Project Description Narratives

**Purpose, Scope, and Technical Approach:**

The mission of this project is to safely store and treat a variety of radioactive materials which are currently in storage at the Idaho Nuclear Technology and Engineering Center (INTEC), including radioactive liquid waste, calcine (solidified radioactive waste), debris (used, contaminated equipment), and used HEPA filters. On-going fuel storage, waste treatment, and decontamination activities generate additional liquid waste, debris, and used filters. Existing and newly generated liquid wastes are concentrated by the High Level Liquid Waste Evaporator (HLLWE), Process Equipment Waste Evaporator (PEWE), and Liquid Effluent Treatment and Disposal (LET&D) system, to minimize stored volume and are then collected in the Tank Farm. These wastes are then solidified by the calciner, which is housed in the New Waste Calcining Facility (NWCF). The calcine is stored in the Calcine Solids Storage Facilities (CSSF) until future projects retrieve and treat it for final disposal. Process off-gases are treated, monitored, and released. Non-radioactive process water, such as cooling water, is monitored and released to percolation ponds by the Service Waste system. The Filter Leach process treats used HEPA filters and the Debris Treatment process will treat mixed debris. The products from these two operations are solid low level waste materials, which are disposed in the Radioactive Waste Management Complex (RWMC), and a liquid mixed waste that is sent to the Tank Farm.

All liquid high level waste (HLW) was calcined as of FY 1998 and the liquid remaining in the Tank Farm is soduim-bearing waste (SBW), which is a mixed transuranic waste. All liquid wastes generated currently and in the future are non-HLW.

The Idaho High Level Waste and Facilities Disposition Environmental Impact Statement is currently in progress. It will be completed and the Record of Decision (ROD) issued in FY 2000. DOE will then implement the ROD to provide a path forward for final treatment of the radioactive liquid and calcine wastes.

This project includes three line item construction projects in the preliminary planning stage: NWCF Maximum Achievable Control Technology (MACT) Upgrades, CSSF #8, and CSSF #1 Retrieval and Transfer. The NWCF MACT Upgrades project is an add-on facility to the NWCF to treat the off-gas to future release standards that are more stringent than current requirements. The CSSF #8 project's scope is to construct a new bin set similar to CSSF #7. The CSSF #1 Retrieval and Transfer project will provide the equipment necessary to retrieve calcine from CSSF #1 and transfer it to CSSF #6 or #7. This is needed because CSSF #1 does not meet current seismic structural requirements. In the event of an earthquake, the bins could be damaged and calcine could be released.

**Project Status in FY 2006:**

In 2006 there will be approximately 3600 cubic meters of radioactive liquid waste, 4,225 cubic meters of calcine, no debris, and no used HEPA filters stored at the INTEC. These changes in volume will result primarily from operating the calciner to convert the HLLW to calcine, the Filter Leach process and the Debris Treatment process to treat the HEPA filters and mixed waste debris. The HEPA filter stored backlog inventory is scheduled to reach zero by 2006, with leaching continuing on an as-needed basis after that time. The three line item projects would be in progress.

**Post-2006 Project Scope:**

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The Calciner will continue to operate until 2013 to empty the Tank Farm to comply with the Settlement Agreement with the State of Idaho. The existing Tank Farm will not be used after 2013. Newly generated waste will be concentrated by the HLLWE, to minimize stored volume, and collected in RCRA-compliant tanks after 2005. Calcine storage will continue to be monitored until the final disposition determined by the EIS ROD is implemented. The three line item projects will be completed and put into service. Project ID-HLW-101 is terminated at the end of 2014 and the treatment and final disposition are covered by Project ID-HLW-103.

**Project End State**

When this project is complete, the Calciner will be permanently shut down and flushed. The eleven existing, 300,000-gallon tanks will have been emptied to heel level (the lowest liquid level which can be attained with existing equipment) to comply with the Settlement Agreement with the State of Idaho. The CSSF, containing approximately 5500 cubic meters of calcine, will be isolated from the NWCF and properly prepared to store the calcine until calcine treatment is initiated. Projects ID-HLW-102 and -103 will treat all HLW-related materials to final, disposable forms and then properly dispose of the waste. Project ID-HLW-105 will cover the RCRA closure of the current tanks.

**Cost Baseline Comments:**

The costs provided in the cost section contain no contingency. An escalation factor of 2.1% per year was applied to all projects for the years 2000 through 2014. These cost estimates were originally developed as part of the EM Integration activity performed at the INEEL during February and March 1996. They were updated in March 1999 to reflect program changes during the intervening period, specifically the modifications to the Notice of Noncompliance Consent Order signed by DOE-ID, the State of Idaho and the EPA in August 1998. All costs are compliance driven, as confirmed by the DOE-HQ Peer Review in May 1998, with the primary drivers being the INEEL Site Treatment Plan, the Notice of Noncompliance Consent Order and the Settlement Agreement with the State of Idaho.

**Safety & Health Hazards:**

If the waste processing operations in this PBS are not performed, the other operations at the INTEC, including spent nuclear fuel storage and facility deactivation, would have to be stopped. The current Tank Farm does not comply with RCRA regulations for secondary containment for acidic waste. The Settlement Agreement with the State of Idaho requires that the current tanks be emptied (except for residual heels) by 2012. Stakeholders are concerned that large quantities of radioactive waste are stored above the Snake River aquifer. The risk of a spill of radioactive liquid to the environment is bounded by the subsurface water analysis as documented in the SNF and HLW EIS (DOE/EIS-203-F, Vol. 2, Part A, Section 5 & 2). Analysis shows that the potential for transport of contaminates for the perched water zones beneath the INTEC, in particular the transport of iodine-129, would be below the maximum contaminant level and the doses would not exeed the nominal value of 4 mrem per year at the site boundary. The risk to workers and the public of a release of calcine from the CSSF is also documented in the EIS (Vol. 2, Part A, p. 5.14 - 13). The accident evaluated in the EIS is the effects of an airplane crash into a CSSF. The frequency for this event is 2.0 E-07 events per year. Facility work dose is 4.1 E0 rem. The MEI dose is 1.1 E0 rem, and the risk of fatal cancer is 1.1 E-10.

**Safety & Health Work Performance:**

The facility designs minimizes any worker risk; as does surveillance and housekeeping which minimize worker contaminations and monitoring of hazardous materials minimizes the risk of causing injury to workers.

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## Project Description Narratives

A greater risk of contamination or exposure to workers is present when maintenance activities are required. These risks are mitigated through application of existing policies, practices, training, and procedures, including: the Radiological Control Manual, an ALARA review committee, and Enhanced Work Planning. Enhanced Work Planning (EWP) was implemented at the INTEC in 1996 and was recently revised in response to the report from the TRA CO2 accident. This program greatly minimizes worker risks.

**PBS Comments:**

The storage of these materials is very visible to the State of Idaho because it is an inventory of radioactive and hazardous material stored over the Snake River Plain aquifer. It is this issue which prompted the legal action that resulted in the Settlement Agreement with the state of Idaho. The state feels the storage of the liquid is especially hazardous and should be corrected as soon as possible. The objective of this PBS is to convert this liquid to a more stable solid form stored in above ground bin sets. If these activities are not performed, several legally enforceable compliance milestones (the primary one is emptying the Tank Farm by 2012) will not be met.

**Baseline Validation Narrative:**

The costs were reviewed by the Corps of Engineers in 1998 and the Corps' recommendations have been incorporated.

## General PBS Information

**Project Validated?** **Date Validated:**

**Has Headquarters reviewed and approved project?** No

**Date Project was Added:** 12/1/1997

**Baseline Submission Date:**

**FEDPLAN Project?** Yes

**Drivers:**

| CERCLA | RCRA | DNFSB | AEA | UMTRCA | State | DOE Orders | Other |
|---|---|---|---|---|---|---|---|
| N | Y | N | N | N | Y | Y | N |

## Project Identification Information

**DOE Project Manager:** Keith A. Lockie

**DOE Project Manager Phone Number:** 208-526-0118

**DOE Project Manager Fax Number:** 208-526-7245

**DOE Project Manager e-mail address:** lockieka@inel.gov

**Is this a High Visibility Project (Y/N):** Y

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**Planning Section**

**Baseline Costs (in thousands of dollars)**

| | 1997-2006 Total | 2007-2070 Total | 1997-2070 Total | 1997 | Actual 1997 | 1998 | Actual 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PBS Baseline (current year dollars) | 552,740 | 518,443 | 1,071,183 | 43,602 | 43,602 | 40,334 | 40,334 | 38,546 | 38,751 | 43,806 | 44,133 | 50,199 | 73,062 | 92,698 | 87,609 |
| PBS Baseline (constant 1999 dollars) | 511,263 | 410,523 | 921,786 | 43,602 | 43,602 | 40,334 | 40,334 | 38,546 | 37,732 | 41,777 | 41,223 | 45,925 | 65,466 | 81,353 | 75,305 |
| PBS EM Baseline (current year dollars) | 552,740 | 518,443 | 1,071,183 | 43,602 | 43,602 | 40,334 | 40,334 | 38,546 | 38,751 | 43,806 | 44,133 | 50,199 | 73,062 | 92,698 | 87,609 |
| PBS EM Baseline (constant 1999 dollars) | 511,263 | 410,523 | 921,786 | 43,602 | 43,602 | 40,334 | 40,334 | 38,546 | 37,732 | 41,777 | 41,223 | 45,925 | 65,466 | 81,353 | 75,305 |

| | 2007 | 2008 | 2009 | 2010 | 2011-2015 | 2016-2020 | 2021-2025 | 2026-2030 | 2031-2035 | 2036-2040 | 2041-2045 | 2046-2050 | 2051-2055 | 2056-2060 | 2061-2065 | 2066-2070 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PBS Baseline (current year dollars) | 93,494 | 92,065 | 83,246 | 64,519 | 185,119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PBS Baseline (constant 1999 dollars) | 78,711 | 75,913 | 67,230 | 51,034 | 137,635 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PBS EM Baseline (current year dollars) | 93,494 | 92,065 | 83,246 | 64,519 | 185,119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PBS EM Baseline (constant 1999 dollars) | 78,711 | 75,913 | 67,230 | 51,034 | 137,635 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Baseline Escalation Rates**

| 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00% | 0.00% | 0.00% | 2.70% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% |

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| 2010 | 2011-2015 | 2016-2020 | 2021-2025 | 2026-2030 | 2031-2035 | 2036-2040 | 2041-2045 | 2046-2050 | 2051-2055 | 2056-2060 | 2061-2065 | 2066-2070 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% | 2.10% |

## Project Reconciliation

### Project Completion Date Changes:

**Previously Projected End Date of Project:** 9/1/2014

**Current Projected End Date of Project:** 9/1/2014

**Explanation of Project Completion Date Difference (if applicable):**

### Project Cost Estimates (in thousands of dollars)

| | | | | | |
|---|---|---|---|---|---|
| **Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):** | 855,263 | **Actual 1997 Cost:** | 43,602 | **Actual 1998 Cost:** | 40,334 |
| **Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):** | 771,327 | **Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):** | | | 20,826 |
| **Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):** | 792,153 | | | | |

### Project Cost Changes

| | Cost Adjustments | Reconciliation Narratives |
|---|---|---|
| **Cost Change Due to Scope Deletions (-):** | 150,741 | Seven year shutdown of calciner until MACT upgrade is completed. |
| **Cost Reductions Due to Efficiencies (-):** | 14,273 | Incorporated recommendations from the Corps of Eng. review |
| **Cost Associated with New Scope (+):** | 210,712 | Added LICP for Liquid Waste Storage, CSSF #1 Retrieval & Transfer |
| **Cost Growth Associated with Scope Previously Reported (+):** | | |
| **Cost Reductions Due to Science & Technology Efficiencies (-):** | | |
| **Subtotal:** | 837,851 | |
| **Additional Amount to Reconcile (+):** | -1 | |
| **Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):** | **837,850** | |

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## Milestones

| Milestone/Activity | Field Milestone Code | Original Date | Baseline Date | Legal Date | Forecast Date | Actual Date | EA | DNFSB | Mgmt. Commit. | Key Decision | Intersite |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-24 | | 12/24/2007 | 12/31/2007 | 12/31/2007 | | Y | | | | |
| 25% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-16 | | 12/31/1999 | 12/31/1999 | 12/31/1999 | | Y | | | | |
| 50% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-18 | | 12/31/2002 | 12/31/2002 | 12/31/2002 | | Y | | | | |
| 75% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-23 | | 12/31/2004 | 12/31/2004 | 12/31/2004 | | Y | | | | |
| CALCINER GOES INTO STANDBY MODE | ID-HLW-101-15 | | 4/30/1999 | 4/30/1999 | 4/30/1999 | | Y | | | | |
| CEASE USE OF JUNCTION BOXES IN THE TANK FARM | ID-HLW-101-28 | | 12/31/2012 | 12/31/2012 | 12/31/2012 | | Y | | | | |
| CEASE USE OF LINES TO PILLAR & PANEL TANKS | ID-HLW-101-20 | | 6/30/2003 | 6/30/2003 | 6/30/2003 | | Y | | | | |
| CEASE USE OF LINES TO THE MONOLITHIC TANKS | ID-HLW-101-27 | | 12/31/2012 | 12/31/2012 | 12/31/2012 | | Y | | | | |
| CEASE USE OF MONOLITHIC TANKS IN THE TANK FARM | ID-HLW-101-26 | | 12/31/2012 | 12/31/2012 | 12/31/2012 | | Y | | | | |
| CEASE USE OF PILLAR & PANEL TANKS | ID-HLW-101-12 | | 6/30/2003 | 6/30/2003 | 6/30/2003 | | Y | | | | |
| CEASE USE OF VALVE BOXES FOR MONOLITHIC TANKS | ID-HLW-101-29 | | 12/31/2012 | 12/31/2012 | 12/31/2012 | | Y | | | | |
| CEASE USE OF VALVE BOXES FOR PILLAR & PANEL TANKS | ID-HLW-101-21 | | 6/30/2003 | 6/30/2003 | 6/30/2003 | | Y | | | | |
| COMMENCE CALCINATION OF SBW | ID-HLW-101-11 | | 6/1/2001 | 6/1/2001 | | 2/20/1998 | Y | | | | |
| COMMENCE DEBRIS TREATMENT SYSTEM TESTING | ID-HLW-101-08 | | 9/30/1999 | 9/30/1999 | | 1/29/1998 | Y | | | | |
| COMMENCE OPERATION OF DEBRIS TREATMENT FACILITY | ID-HLW-101-09 | | 9/30/2000 | 9/30/2000 | 9/30/2000 | | Y | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| COMPLETE A PERMITTING PLAN & SCHEDULE FOR HLW FACILITIES | ID-HLW-101-33 | | 12/31/1998 | | 6/30/1999 | | | | | | |
| COMPLETE CALCINATION OF NON-SBW LIQUID WASTE | ID-HLW-101-07 | | 6/30/1998 | 6/30/1998 | | 2/20/1998 | Y | | | | |
| COMPLETE CALCINATION OF SBW | ID-HLW-101-13 | | 12/31/2012 | 12/31/2012 | 12/31/2012 | | Y | | | | |
| COMPLETE DEVELOPMENT OF A TRANSITION PLAN FOR NWCF | ID-HLW-101-31 | | 6/1/1999 | | 6/1/1999 | | | | | | |
| COMPLETE SAMPLING & ANALYSIS PLAN TO SUPPORT A PART B PERMIT APP | ID-HLW-101-34 | | 12/31/1998 | | | 9/29/1998 | | | | | |
| DOE PROVIDES WRITTEN NOTICE OF DECISION/PLANS FOR CALCINER | ID-HLW-101-17 | | 6/1/2000 | 6/1/2000 | 6/1/2000 | | Y | | | | |
| FINAL SCREENING LEVEL RISK ASSESSMENT FOR CALCINER | ID-HLW-101-14 | | 12/31/1998 | 12/31/1998 | | 12/23/1998 | Y | | | | |
| PART B PERMIT APPLICATION FOR FIRST HLW PROCESS SUBMITTED | ID-HLW-101-35 | | 4/30/1999 | | 4/30/1999 | | | | | | |
| PROJECT MISSION COMPLETE | ID-HLW-101-30 | | 9/30/2014 | | 9/1/2014 | | | | | | |
| SUBMIT BACKLOG SCHEDULE FOR DEBRIS TREATMENT | ID-HLW-101-10 | | 9/30/2000 | 9/30/2000 | 9/30/2000 | | Y | | | | |
| WASTE MINIMIZATION PLANS ARE REVISED TO CURRENT WORK ORDERS | ID-HLW-101-32 | | 1/30/1999 | | 1/30/1999 | | | | | | |
| Cease Use of Group 1 Lines to Pillar & Panel Tanks | | | 6/30/2003 | 6/30/2003 | | | Y | | | | |
| Cease Use of Group 2 Lines to Pillar & Panel Tanks | | | 6/30/2003 | 6/30/2003 | | | Y | | | | |
| Project Start | | | 10/1/1996 | | | | | | | | |

## Milestones - Part II

| Milestone/Activity | Field Milestone Code | Critical Decision | Critial Closure Path | Project Start | Project End | Mission Complete | Tech Risk | Work Scope Risk | Intersite Risk | Cancelled | Milestone Description |
|---|---|---|---|---|---|---|---|---|---|---|---|

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| 100% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-24 | | | | | | | | | | |
| 25% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-16 | | | | | | | | | | |
| 50% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-18 | | | | | | | | | | |
| 75% OF HEPA FILTER LEACH BACKLOG TREATED | ID-HLW-101-23 | | | | | | | | | | |
| CALCINER GOES INTO STANDBY MODE | ID-HLW-101-15 | | | | | | | | | | |
| CEASE USE OF JUNCTION BOXES IN THE TANK FARM | ID-HLW-101-28 | | | | | | | | | | |
| CEASE USE OF LINES TO PILLAR & PANEL TANKS | ID-HLW-101-20 | | | | | | | | | | |
| CEASE USE OF LINES TO THE MONOLITHIC TANKS | ID-HLW-101-27 | | | | | | | | | | |
| CEASE USE OF MONOLITHIC TANKS IN THE TANK FARM | ID-HLW-101-26 | | | | | | | | | | |
| CEASE USE OF PILLAR & PANEL TANKS | ID-HLW-101-12 | | | | | | | | | | |
| CEASE USE OF VALVE BOXES FOR MONOLITHIC TANKS | ID-HLW-101-29 | | | | | | | | | | |
| CEASE USE OF VALVE BOXES FOR PILLAR & PANEL TANKS | ID-HLW-101-21 | | | | | | | | | | |
| COMMENCE CALCINATION OF SBW | ID-HLW-101-11 | | | | | | | | | | |
| COMMENCE DEBRIS TREATMENT SYSTEM TESTING | ID-HLW-101-08 | | | | | | | | | | |

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**Milestones - Part II**

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|---|---|---|---|---|---|---|---|---|---|---|---|
| COMMENCE OPERATION OF DEBRIS TREATMENT FACILITY | ID-HLW-101-09 | | | | | | | | | | |
| COMPLETE A PERMITTING PLAN & SCHEDULE FOR HLW FACILITIES | ID-HLW-101-33 | | | | | | | | | | |
| COMPLETE CALCINATION OF NON-SBW LIQUID WASTE | ID-HLW-101-07 | | | | | | | | | | |
| COMPLETE CALCINATION OF SBW | ID-HLW-101-13 | | | | | | | | | | |
| COMPLETE DEVELOPMENT OF A TRANSITION PLAN FOR NWCF | ID-HLW-101-31 | | | | | | | | | | |
| COMPLETE SAMPLING & ANALYSIS PLAN TO SUPPORT A PART B PERMIT APP | ID-HLW-101-34 | | | | | | | | | | |
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| FINAL SCREENING LEVEL RISK ASSESSMENT FOR CALCINER | ID-HLW-101-14 | | | | | | | | | | |
| PART B PERMIT APPLICATION FOR FIRST HLW PROCESS SUBMITTED | ID-HLW-101-35 | | | | | | | | | | |
| PROJECT MISSION COMPLETE | ID-HLW-101-30 | | | | Y | | | | | | |
| SUBMIT BACKLOG SCHEDULE FOR DEBRIS TREATMENT | ID-HLW-101-10 | | | | | | | | | | |
| WASTE MINIMIZATION PLANS ARE REVISED TO CURRENT | ID-HLW-101-32 | | | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| WORK ORDERS | | | | | | | | | | | |
| Cease Use of Group 1 Lines to Pillar & Panel Tanks | | | | | | | | | | | Cease use of lines PUA-1033, PUA-1099, PUA-1035, and PUA-1098 at the tank farm, except for possible emergency use of tank WM-195. |
| Cease Use of Group 2 Lines to Pillar & Panel Tanks | | | | | | | | | | | Cease use or provide secondary containment for lines PUA-1005, PUA-1030, PUA-601, PUA-602, PUA-620, PUA-621, PUA-609, PUA-610, PUA-630, PUA-631, PUA-208, PUA-1029, PUA-1016, and PUA-1040 at the tank farm, except for emergency use of tank WM-185. |
| Project Start | | | | Y | | | | | | | |

## Performance Measure Metrics

| Category/Subcategory | Units | 1997-2006 Total | 2007-2070 Total | 1997-2070 Total | Actual Pre-1997 | Planned 1997 | Actual 1997 | Planned 1998 | Planned 1999 | Planned 2000 | Planned 2001 | Planned 2002 | Planned 2003 | Planne 20( |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HLW** | | | | | | | | | | | | | | |
| **Treatment** | M3 | 6,169.80 | 6,675.60 | 12,845.40 | 0.00 | | 0.00 | 864.90 | 622.90 | 2,081.80 | 2,076.10 | 328.10 | 70.20 | 42.( |
| **HLW** | | | | | | | | | | | | | | |
| **Storage** | M3 | | | | | | | 8,057.40 | 7,917.30 | 6,963.50 | 6,922.50 | 6,841.50 | 6,871.20 | 6,892.2 |
| **MLLW** | | | | | | | | | | | | | | |
| **Treatment** | M3 | 675.43 | 389.78 | 1,065.21 | | | | 0.00 | 109.10 | 109.10 | 109.10 | 109.09 | 109.09 | 43.3 |
| **MLLW** | | | | | | | | | | | | | | |
| **Storage** | M3 | | | | | | | 87.99 | 70.39 | 52.79 | 35.19 | 17.60 | 0.00 | 0.( |
| **LLW** | | | | | | | | | | | | | | |

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Project **ID-HLW-101 / High-Level Waste Pretreatment**

## Performance Measure Metrics

| Category/Subcategory | Units | 1997-2006 Total | 2007-2070 Total | 1997-2070 Total | Actual Pre-1997 | Planned 1997 | Actual 1997 | Planned 1998 | Planned 1999 | Planned 2000 | Planned 2001 | Planned 2002 | Planned 2003 | Planne 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LLW** | | | | | | | | | | | | | | |
| **Storage** | M3 | | | | | | | 78.27 | 62.62 | 46.96 | 31.31 | 15.65 | 0.00 | 0.0 |
| **Tech.** | | | | | | | | | | | | | | |
| **Deployed** | Ntd | 1.00 | 0.00 | 1.00 | | | | | 1.00 | | | | | |

| Category/Subcategory | Units | Planned 2004 | Planned 2005 | Planned 2006 | Planned 2007 | Planned 2008 | Planned 2009 | Planned 2010 | Planned 2011 - 2015 | Planned 2016 - 2020 | Planned 2021 - 2025 | Planned 2026 - 2030 | Planned 2031 - 2035 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HLW** | | | | | | | | | | | | | |
| **Treatment** | M3 | 42.00 | 41.90 | 41.90 | 41.90 | 41.90 | 41.90 | 1,225.30 | 5,324.60 | | | | |
| **HLW** | | | | | | | | | | | | | |
| **Storage** | M3 | 6,892.20 | 6,913.20 | 6,934.20 | 6,955.20 | 6,976.20 | 6,997.20 | 7,094.30 | 4,136.00 | | | | |
| **MLLW** | | | | | | | | | | | | | |
| **Treatment** | M3 | 43.31 | 43.31 | 43.31 | 43.31 | 43.31 | 43.31 | 43.31 | 216.54 | | | | |
| **MLLW** | | | | | | | | | | | | | |
| **Storage** | M3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| **LLW** | | | | | | | | | | | | | |
| **Storage** | M3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | | |
| **Tech.** | | | | | | | | | | | | | |
| **Deployed** | Ntd | | | | | | | | | | | | |

| Category/Subcategory | Units | Planned 2036 - 2040 | Planned 2041 - 2045 | Planned 2046 - 2050 | Planned 2051 - 2055 | Planned 2056 - 2060 | Planned 2061 - 2035 | Planned 2066 - 2070 | Exceptions | Lifecycle Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **HLW** | | | | | | | | | | |
| **Treatment** | M3 | | | | | | | | | 12,502.60 |
| **HLW** | | | | | | | | | | |

| Category/Subcategory | Units | Planned 2036 - 2040 | Planned 2041 - 2045 | Planned 2046 - 2050 | Planned 2051 - 2055 | Planned 2056 - 2060 | Planned 2061 - 2035 | Planned 2066 - 2070 | Exceptions | Lifecycle Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **Storage MLLW** | M3 | | | | | | | | | |
| **Treatment MLLW** | M3 | | | | | | | | | 956.11 |
| **Storage LLW** | M3 | | | | | | | | | |
| **Storage Tech.** | M3 | | | | | | | | | |
| **Deployed** | Ntd | | | | | | | | 1.00 | 1.00 |

## Technology Needs

**Site Need Code:** ID-2.1.16

**Site Need Name:** Decontamination Facility/Analytical Facility Waste Reduction

**Focus Area Work Package ID:** WT-04-01 **Focus Area Work Package:** Ancillary Tank Equipment Enhancements

**Focus Area:** TFA **Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Cost

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|
| Laser Ablation/Mass Spectroscopy (LA/MS) | 0 | |

**Site Need Code:** ID-2.1.17

## Technology Needs

**Site Need Name:** Develop New Filter Leach Process

**Focus Area Work Package ID:**

**Focus Area Work Package:**

**Focus Area:**

**Agree with Technology Link:** N

**Benefits (Cost, Risk Reduction, Both):** Cost

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|

**Site Need Code:** ID-2.1.18

**Site Need Name:** Continuous Emissions Monitor for Offgas Analysis

**Focus Area Work Package ID:** WT-11-01

**Focus Area Work Package:** Constituent Separation and Analysis

**Focus Area:** TFA

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Risk Reduction

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|
| Demonstration of Emerging Continuous Emissions Monitoring Technologies | 0 | |

**Site Need Code:** ID-2.1.19

**Site Need Name:** EPA Methods Sample Collection and Analysis Verification/Development

**Focus Area Work Package ID:** MW-06

**Focus Area Work Package:** Monitoring and Removing Hazardous and Radioactive Contaminants from Off Gas Streams

**Focus Area:** MWFA

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Risk Reduction

## Technology Needs

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 00751: - | Y | N |
| | 00747: A - Liquids | Y | N |

**Site Need Code:** ID-2.1.25

**Site Need Name:** Ion-Exchange System for Water Runoff

**Focus Area Work Package ID:** MW-08 **Focus Area Work Package:** Facilitating Deployment for Unique Wastes

**Focus Area:** MWFA **Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Cost

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|
| Membrane-Supported Particle-Bound Ligands for Cesium Removal | 0 | |
| Liquid Ion Exchanger Development | 0 | |

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 00747: A - Liquids | Y | N |

**Site Need Code:** ID-2.1.26

**Site Need Name:** Nested Array Fluidic Sampler for Tank Solution Characterization

**Focus Area Work Package ID:** **Focus Area Work Package:**

**Focus Area:** **Agree with Technology Link:** N

**Benefits (Cost, Risk Reduction, Both):** Risk Reduction

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|
| Variable Depth Fluidic Sampler | 0 | |

## Technology Needs

At-Tank Sampling for High-Level Waste 0

**Site Need Code:** ID-2.1.29

**Site Need Name:** Evaluate Chloride Corrosion Potential (LET&D/PEWE/Future Processes)

**Focus Area Work Package ID:** WT-07-01 **Focus Area Work Package:** Acceptance Criteria and Canister Storage

**Focus Area:** TFA **Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Risk Reduction

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 00747: A - Liquids | Y | N |

**Site Need Code:** ID-2.1.30

**Site Need Name:** Remove/Treat Chlorides (LET&D/PEWE/Future Processes)

**Focus Area Work Package ID:** WT-07-01 **Focus Area Work Package:** Acceptance Criteria and Canister Storage

**Focus Area:** TFA **Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Risk Reduction

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 00747: A - Liquids | Y | N |

**Site Need Code:** ID-2.1.36

## Technology Needs

**Site Need Name:** Mercury Removal from Liquid Wastes

**Focus Area Work Package ID:** WT-08-01 **Focus Area Work Package:** Solids Pretreatment

**Focus Area:** TFA **Agree with Technology Link:** N

**Benefits (Cost, Risk Reduction, Both):** Cost

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|
| Mercury Contamination - Separate and Remove Mercury using Polymer Filtration | | |
| Mercury Contamination - Separate and Remove Mercury using Sorbent Process | | |
| Mercury Wastes - >260ppm | | |

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 00747: A - Liquids | Y | N |

**Site Need Code:** ID-2.1.41

**Site Need Name:** HLW Process Offgas Treatment

**Focus Area Work Package ID:** **Focus Area Work Package:**

**Focus Area:** **Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):** Risk Reduction

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 00751: - | Y | N |
| | 00747: A - Liquids | Y | N |

**Site Need Code:** ID-S.1.02

**Site Need Name:** Continuous Emissions Monitors for Offgas Analysis

## Technology Needs

**Focus Area Work Package ID:**

**Focus Area Work Package:**

**Focus Area:**

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):**

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 02068: ABM - WERF Sized MLLW to WERF Incin | Y | N |
| | 02039: AAJ - Sludges/Liquids/Debris/Labpacks to WERF | Y | N |
| | 02056: ABA - MLLW from HLW to WERF Incin | Y | N |
| | 02038: AAI - Elemental Lead | Y | N |
| | 00791: - | Y | N |
| | 00747: A - Liquids | Y | N |
| | 00751: - | Y | N |

**Site Need Code:** ID-S.2.04

**Site Need Name:** Physics and Chemistry of Plasma Processing

**Focus Area Work Package ID:** MW-06

**Focus Area Work Package:** Monitoring and Removing Hazardous and Radioactive Contaminants from Off Gas Streams

**Focus Area:** MWFA

**Agree with Technology Link:** Y

**Benefits (Cost, Risk Reduction, Both):**

| Technologies | Cost Savings (in thousands of dollars) | Range of Estimate |
|---|---|---|

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 02497: W2 - MTRU-Soil | Y | N |
| | 02488: T10 - LLW-Rubble/Debris | Y | N |

# *Project Baseline Summary Report*

Data Source: **EM CDB** Report Number: **GEN-01b**

Operations/Field Office: **Idaho** Print Date: **3/10/2000**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory** HQ ID: **0193**

Project **ID-HLW-101 / High-Level Waste Pretreatment**

## Technology Needs

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 00751: - | Y | N |
| | 00747: A - Liquids | Y | N |
| | 00784: A4 - LLW-Soil/Rubble/Debris | Y | N |
| | 00776: A2 - HAZ-Soil | Y | N |
| | 00780: A3 - LLW-Liquid | Y | N |
| | 02462: I8.1 - Treated MLLW | Y | N |
| | 02484: - | Y | N |
| | 02426: - | Y | N |
| | 02463: T3 - MLLW-Soil | Y | N |
| | 02486: - | Y | N |
| | 02489: - | Y | N |
| | 02492: T8 - HAZ-Soil | Y | N |
| | 02487: - | Y | N |
| | 02466: T4 - D&D MLLW-Rubble/Debris | Y | N |
| | 02469: O2 - MLLW-Liquid | Y | N |
| | 02470: O2.1 - MLLW-Solids | Y | N |
| | 02491: T7.1 - LLW-Soil | Y | N |
| | 00734: AAD - Wet Aluminum Based SNF | Y | N |
| | 00740: AAH - INTEC 603 Metallic Sodium Bonded | Y | N |
| | 00716: AAA - TAN Wet Stainless Steel, Zirconium, & Misc SNF | Y | N |
| | 00720: AAB - Wet Stainless Steel, Zirconium, & Misc SNF | Y | N |
| | 02485: L3 - LLW-Soil | Y | N |

# *Project Baseline Summary Report*

Data Source: **EM CDB** Report Number: **GEN-01b**

Operations/Field Office: **Idaho** Print Date: **3/10/2000**

Site Summary Level: **Idaho National Engineering and Environmental Laboratory** HQ ID: **0193**

Project **ID-HLW-101 / High-Level Waste Pretreatment**

## Technology Needs

| Related CCP Milestones | Related Waste Streams | Agree? | Change? |
|---|---|---|---|
| | 02464: L1 - HAZ-Soil | Y | N |

## Technology Deployments

| | Deployment Year | | |
|---|---|---|---|
| **Deployment Status** | **Planned** | **Forecast** | **Actual Date** |
| **Technology Name:** NWCF Offgas Sampling | | | |
| Deployment Commitment | 1999 | | |